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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,827	07/03/2002	Sukbir Pannu	P61834-PCT	5269

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09/30/2003

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EXAMINER

FEGGINS, KRISTAL J

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,827

Applicant(s)

PANNU, SUKBIR

Examiner

K. Feggins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10-13, 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Naoki Morita.

Morita discloses the following claimed limitations:

* regarding claim 10, a droplet generator for a continuous stream ink jet print head (pg. 106 para 1);

* a) an elongate cavity/hole straight length/ for containing ink (fig 1, pg 107);

* b) nozzle orifices in a wall of the cavity for passing the ink from the cavity to form jets, said nozzle orifices extending along a length of the cavity (fig 1, pg 107);

* c) actuator means disposed on an opposite side of the cavity to said wall for vibrating the ink in the cavity such that each said jet breaks up into ink droplets, a standing wave being present in the ink in the cavity during operation of the generator (pg 106, para 2, fig 5);

* d) said cavity having a cross-sectional area which varies along said length in a manner so as to tailor a form of said standing wave in the cavity such that each said jet breaks up into the ink droplets at a respective predetermined distance from said wall of the cavity (pg 106, para 2, pg 107, 109);

* regarding claim 11, wherein the form of said standing wave is tailored such that each said jet breaks up into the ink droplets at substantially the same predetermined distance from said wall of the cavity (pg 106, para 2, pg 107, 109);

* regarding claim 12, wherein the cross-sectional area of the cavity varies cyclically along said length between minimum and maximum values, said cross-sectional area having the minimum value where at said standing wave has a region of low acoustic pressure at the nozzle orifices, said cross-sectional area having the maximum value where at said standing wave has a region of high acoustic pressure at the nozzle orifices (pgs 107-109);

* regarding claim 13, wherein said cross-sectional area varies sinusoidally along said length (pg 106, para 2, pgs 107-109);

* regarding claim 15, wherein said cavity has a generally rectangular cross-section (fig 1)

* regarding claim 16, a method of operating a droplet generator for a continuous stream ink jet print head (pg. 106 para 1);

* a) containing ink in an elongate cavity having a length and a cross sectional area (fig 1);

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* b) passing the ink from the cavity through nozzle orifices in a wall of the cavity to form jets, the orifices extending along the length of the cavity (pg 106, fig 1);

* c) vibrating the ink in the cavity such that each said jet breaks up into ink droplets, a standing wave being present in the ink in the cavity during operation of the generator (pg 106, para 2, pgs 109-112);

* d) varying the cross-sectional area of the cavity along said length to tailor a form of the standing wave in the cavity such that each said jet breaks up into the ink droplets at a respective predetermined distance from said wall of the cavity (pg 107-109);

* e) permitting parameters of the operation of the generator to stray such that the cavity operates over a range extending substantially all the way between two successive resonances along the length of the cavity (pgs 109-112).

* regarding claim 17, wherein said parameters of the operation permitted to stray are ink composition and temperature (the recited structure limitation does not affect the method in a manipulative sense).

* regarding claim 18, wherein said cavity operates at substantially midway between the two successive resonances along the length of the cavity (pgs 109-112).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naoki Morita (IDS).

Morita discloses all of the claimed limitations except for

* a cavity has a generally triangular cross-section.

However, it would have been an obvious matter of choice to utilize a cavity that has a generally triangular cross-section, since such a modification would have involved a mere change in shape for the purpose of changing the difference in the break off length. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).


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Communication With The USPTO

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 703-306-4548. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, B. Fuller can be reached on 703-308-0079. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


K. Feggins
September 26, 2003